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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/835,903	04/16/2001	Nagabhushana T. Sindhushayana	010067	5512

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QUALCOMM INCORPORATED  
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SAN DIEGO, CA 92121

EXAMINER
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TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2133

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/02/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/02/2007.

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**Office Action Summary**

Application No.

09/835,903

Applicant(s)

SINDHUSHAYANA ET AL.

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/27/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 9-11, 26-32 and 41-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 12-25, 33-40 and 44-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/16/2001</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 1-8, 12-25, 33-40, and 44-57

(Group I) in the reply filed on 12/27/2006 is acknowledged.

Claims 9-11, 26-32, 41-43, and 58-62 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12/27/2006.

### ***Claim Rejections - 35 USC § 112***

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "third code" and "forth code". There is insufficient antecedent basis for this limitation in the claim since there is no mention of first and second codes. In addition, the relationship between parity blocks and codes is not set forth and is unclear.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroda; Toru et al. (US 5432800 A, hereafter referred to as Kuroda).

35 U.S.C. 102(b) rejection of claim 1.

Kuroda teaches processing each of a plurality of data sets to generate a processed data set and a parity block for each data set (Figure 4 in Kuroda teaches processing each of a plurality of data sets comprising 190 bits to generate a processed data set and a parity block for each data set); processing the parity blocks to generate at least one packet (Col. 1, lines 45-47 and Figure 12 in Kuroda teaches that a packet is comprised of 190 bits of information along with CRC parity); and transmitting the processed data sets and the at least one packet (Figure 1 in Kuroda).

35 U.S.C. 102(b) rejection of claims 2, 4 and 5.

Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code); and encoding each of the coded data sets with a systematic code to provide the parity block (First parity field in Figure 4 is a second systematic code).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness..
4. Claims 3, 6-8 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda; Toru et al. (US 5432800 A, hereafter referred to as Kuroda) in view of Sayeed; Zulfiquar et al. (US 5828677 A, hereafter referred to as Sayeed).

35 U.S.C. 103(a) rejection of claim 3.

Kuroda substantially teaches the claimed invention described in claims 1, 2, (as rejected above). In addition, Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code).

However Kuroda does not explicitly teach the specific use of puncturing.

Sayeed, in an analogous art, teaches use of puncturing (Figure 2C in Sayeed teaches puncturing).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Sayeed by including use of puncturing. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of puncturing would have provided an adaptive coding environment (abstract in Sayeed).

35 U.S.C. 103(a) rejection of claim 6.

Second parity in Figure 4 of kuroda is a third code and Figures 2A-2F in Sayeed teach fourth, fifth, sixth, etc. codes.

35 U.S.C. 103(a) rejection of claim 7.

Figure 4 of kuroda is a third code and Figures 2A-2F in Sayeed.

35 U.S.C. 103(a) rejection of claim 8.

Block 37 in Figure 2D of Sayeed.

35 U.S.C. 103(a) rejection of claim 12.

Kuroda teaches processing each of a plurality of data sets to generate a processed data set and a parity block for each data set (Figure 4 in Kuroda teaches processing each of a plurality of data sets comprising 190 bits to generate a processed data set and a parity block for each data set); processing the parity blocks to generate at least one

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packet (Col. 1, lines 45-47 and Figure 12 in Kuroda teaches that a packet is comprised of 190 bits of information along with CRC parity); and transmitting the processed data sets and the at least one packet (Figure 1 in Kuroda).

Note: CPU 605 in Figure 6 of Kuroda is a processing unit.

However Kuroda does not explicitly teach the specific use of receiving signals containing information about incorrectly decoded packets.

Sayeed, in an analogous art, teaches use of receiving signals containing information about incorrectly decoded packets (Abstract in Sayeed+3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Sayeed by including use of receiving signals containing information about incorrectly decoded packets. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of receiving signals containing information about incorrectly decoded packets would have provided notification of incorrectly received packets in order for them to be resent.

35 U.S.C. 103(a) rejection of claims 13, 15 and 16.

Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code); and encoding each of the coded data sets with a systematic code to provide the parity block (First parity field in Figure 4 is a second systematic code).

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35 U.S.C. 103(a) rejection of claim 14.

Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code).

Sayeed, in an analogous art, teaches use of puncturing (Figure 2C in Sayeed teaches puncturing).

5. Claims 33, 34, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda; Toru et al. (US 5432800 A, hereafter referred to as Kuroda) in view of Cox; Charles Edwin et al. (US 5946328 A, hereafter referred to as Cox).

35 U.S.C. 103(a) rejection of claim 33.

Kuroda teaches processing each of a plurality of data sets to generate a processed data set and a parity block for each data set (Figure 4 in Kuroda teaches processing each of a plurality of data sets comprising 190 bits to generate a processed data set and a parity block for each data set); processing the parity blocks to generate at least one packet (Col. 1, lines 45-47 and Figure 12 in Kuroda teaches that a packet is comprised of 190 bits of information along with CRC parity); and transmitting the processed data sets and the at least one packet (Figure 1 in Kuroda).

However Kuroda does not explicitly teach the specific use of a storage medium for executable instructions.

Cox, in an analogous art, teaches use of a storage medium for executable instructions (col. 14, claim 13).



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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Cox by including use of a storage medium for executable instructions. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a storage medium for executable instructions would have provided a flexible means for implementing an ECC method (Note: software solutions provide considerable flexibility and scalability over hardware solutions).

35 U.S.C. 102(b) rejection of claims 34, 36 and 37.

Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code); and encoding each of the coded data sets with a systematic code to provide the parity block (First parity field in Figure 4 is a second systematic code).

6. Claims 35 and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda; Toru et al. (US 5432800 A, hereafter referred to as Kuroda) in view of Sayeed; Zulfiquar et al. (US 5828677 A, hereafter referred to as Sayeed).

35 U.S.C. 103(a) rejection of claim 3.

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Kuroda substantially teaches the claimed invention described in claims 1, 2, (as rejected above). In addition, Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code).

However Kuroda does not explicitly teach the specific use of puncturing.

Sayeed, in an analogous art, teaches use of puncturing (Figure 2C in Sayeed teaches puncturing).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Sayeed by including use of puncturing. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of puncturing would have provided an adaptive coding environment (abstract in Sayeed).

35 U.S.C. 103(a) rejection of claim 38.

Second parity in Figure 4 of kuroda is a third code and Figures 2A-2F in Sayeed teach fourth, fifth, sixth, etc. codes.

35 U.S.C. 103(a) rejection of claim 39.

Figure 4 of kuroda is a third code and Figures 2A-2F in Sayeed.

35 U.S.C. 103(a) rejection of claim 40.

Block 37 in Figure 2D of Sayeed.

7. Claims 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda; Toru et al. (US 5432800 A, hereafter referred to as Kuroda) in view of Cox; Charles Edwin et al. (US 5946328 A, hereafter referred to as Cox) in further view of Sayeed; Zulfiquar et al. (US 5828677 A, hereafter referred to as Sayeed).

35 U.S.C. 103(a) rejection of claim 44.

Kuroda teaches processing each of a plurality of data sets to generate a processed data set and a parity block for each data set (Figure 4 in Kuroda teaches processing each of a plurality of data sets comprising 190 bits to generate a processed data set and a parity block for each data set); processing the parity blocks to generate at least one packet (Col. 1, lines 45-47 and Figure 12 in Kuroda teaches that a packet is comprised of 190 bits of information along with CRC parity); and transmitting the processed data sets and the at least one packet (Figure 1 in Kuroda).

However Kuroda does not explicitly teach the specific use of a storage medium for executable instructions.

Cox, in an analogous art, teaches use of a storage medium for executable instructions (col. 14, claim 13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda with the teachings of Cox by including use of a storage medium for executable instructions. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of

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ordinary skill in the art would have recognized that use of a storage medium for executable instructions would have provided a flexible means for implementing an ECC method (Note: software solutions provide considerable flexibility and scalability over hardware solutions).

However Kuroda and Cox does not explicitly teach the specific use of puncturing.

Sayeed, in an analogous art, teaches use of puncturing (Figure 2C in Sayeed teaches puncturing).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kuroda and Cox with the teachings of Sayeed by including use of puncturing. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of puncturing would have provided an adaptive coding environment (abstract in Sayeed).

35 U.S.C. 103(a) rejection of claims 45, 47 and 48.

Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code); and encoding each of the coded data sets with a systematic code to provide the parity block (First parity field in Figure 4 is a second systematic code).

35 U.S.C. 103(a) rejection of claim 46.

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Figure 4 of Kuroda teaches encoding each of the plurality of data sets with a first code to provide a coded data set (CRC in Figure 4 is a first code).

Sayed, in an analogous art, teaches use of puncturing (Figure 2C in Sayed teaches puncturing).

***Allowable Subject Matter***

8. Claims 17-25 and 49-57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an Examiner's statement of reasons for the indication of allowable subject matter:

The present invention pertains to a method for multiple concatenated encoding of information bits.

Claims 17 and 49 are directed to selecting a subset of parity bits and encoding of the selected parity bits.

As shown above in the rejection section of the current Office Action, methods for multiple concatenated encoding of information bits is well-known in the art and whereas parity bit from a previous encoder are generally encoded along with information bits from the previous encoder, the Prior does not teach selecting a proper subset of the parity bits for subsequent encoding as taught for example in Figure 2D of the Applicant's drawings, hence; do not teach, suggest, or otherwise render obvious the

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algorithm for on-the-fly allocation of alternate spare sectors as taught by claim 17 and its base and intervening claims (likewise for claim 49). Hence the prior art taken alone or in any combination fail to teach the claimed novel feature in claim 17 in view of its base and intervening claims (likewise for claim 49).

Claims 18-25 depend from claim 17 and 50-57 depend from claim 49.

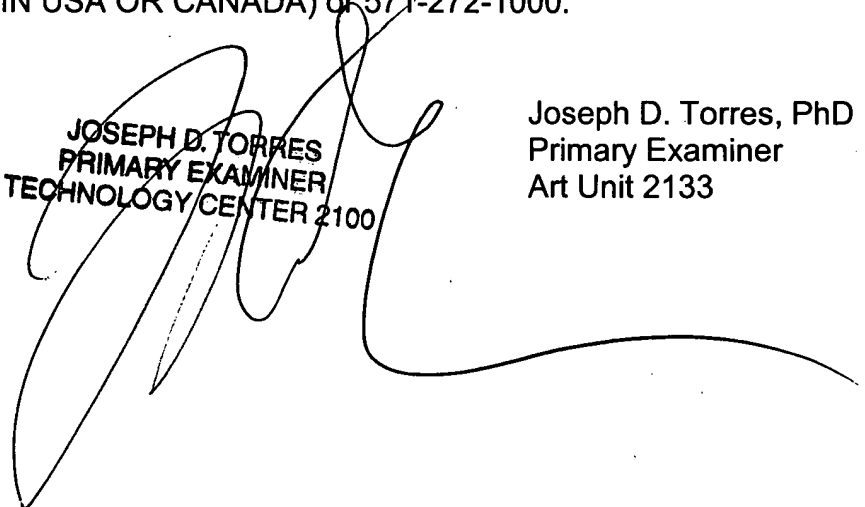
### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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